REMARKS

Claims 7-19 are pending with claims 1-6 canceled and claims 7-19 added by this paper.

Specification Objections

Applicants have amended the title, inserted a heading in the specification, and provided descriptions to some of the drawing figures. Consequently, Applicants respectfully submit that these objections should be withdrawn. Furthermore, Applicants respectfully submit that the remaining suggested headings are not mandatory.

Claim Rejections Under 35 U.S.C §112, second paragraph

Applicants respectfully submit that the new claims 7-19 submitted herewith comply with the statutory requirements of 35 U.S.C §112, second paragraph. Consequently, Applicants respectfully submit that this ground of rejection is not applicable to the present claims.

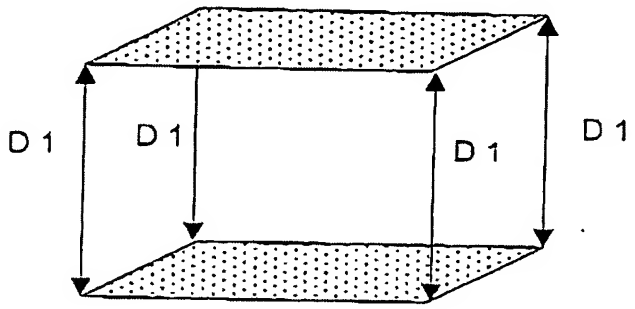
Claim Rejections Under 35 U.S.C §103

Claims 1, 2, 4 and 5 stand rejected as allegedly being unpatentable over U.S. Patent No. 6,375,871 B1 (Bentson) in view of WO 98/45693 (Soane) with or without the further teaching of WO 98/32535 (Lindberg). In addition, claim 3 stands rejected as allegedly being unpatentable over Bentson and Soane (with or without Lindberg), and further in view of U.S. Patent No. 6,406,583 B1 (Harden). Furthermore, claim 6 stands rejected as allegedly being unpatentable over Bentson alone or, Bentson and Soane (with or without Linberg) in further view of WO 98/09161 (Mathies). Although the action alleges that Lindberg teaches applying pieces without clogging microchannels,

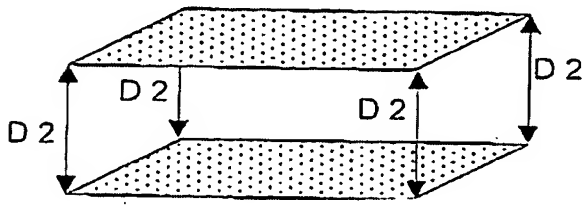
the action admits that Bentson does not explicitly disclose clogging the channels with adhesive. Applicants respectfully traverse these rejections as not applicable to the present claims.

Bentson discloses a continuous process for manufacturing microfluidic articles. See, e.g., Figure 8. As such, the material of the microstructured article and the cover layer needs to be flexible to be transported by rollers. In addition, the microstructured article and the cover layer are joined by laminating the cover substrate 58 to the article 64 between the rollers 60 and 66. See e.g., column 9, lines 29-36 and Fig. 8. In such a process, the microstructured article and the cover layer are first contacted at one edge and are then pressed together starting from that edge until the whole article is covered by the cover layer. Thus, Bentson fails to teach or suggest pressing and joining the components together when joined surfaces of the components are in a parallel relation. Particularly, this distinction is depicted below in the following diagrams:

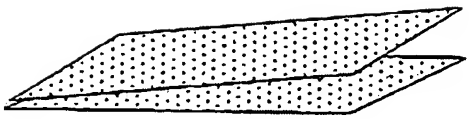
a)



b)



c)



In particular, diagrams a) and b) are relevant to the present invention, depicting the pressing and joining of components together when joined surfaces of the components are in a parallel relation. In marked contrast, diagram c) is relevant to Bentson and shows the relationship of the joined surfaces when the architecture bearing substrate 64 and the cover substrate 58 is laminated into an article 64. See, e.g., Fig. 8. Enclosed herewith is a declaration by one of skill in the art attesting that the process according to Bentson can create an adhesive "wave" that inevitably covers part of the channel or channels with adhesive. Moreover, Bentson does not appreciate how this inadvertent placement of adhesive in the channel can negatively influence the function of the microstructured system. Consequently, this further demonstrates the distinction between the present invention and Bentson.

Support for this feature in the present claims is provided in the specification at page 15, lines 14-19 as well as Figs. 2-4. In addition, the presence of optical registration markers as depicted in Fig. 4, clearly indicate a parallel joining of the elements. Such optical registration markers are used by lining and joining together two elements in parallel. Such an alignment would be useless if the two elements are joined at an angle by first contacting one edge. As attested, optical markers as disclosed in, e.g. Fig. 4, can only be used when the two elements are joined in parallel. Consequently, this feature of the claim has support in the present specification.

Moreover, Soane and Linburg also fail to teach or suggest pressing and joining the components together when joined surfaces of the components are in a parallel relation. Soane is silent regarding the orientation of the surfaces of the base 12 and the cover 11 when joining them together. Linburg also fails to teach or suggest joining the components together with the joined surfaces in a parallel relation. Rather, Linburg's solution is to avoid adhesives entirely to prevent the clogging of capillaries. See page 2, lines 3-5. Thus, even if these references are allegedly combinable, their combined teachings do not teach or suggest the present invention.

With respect to the rejection of claim 3, Harden teaches the use of optical markers. However, Harden fails to teach or suggest the use of sputtered optical markers for aligning two elements of a microfludic unit. Consequently, the alleged combination fails to provide sufficient motivation to employ the process of claim 9. Moreover, Harden does not appreciate introducing electrodes and optical markers at generally the same time, with the benefits of high accuracy and no further expenditure required for introducing the optical markers (relevant to claim 16).

With respect to the rejection of claim 6, Bentson discloses an adhesion layer of chromium oxide and Mathies discloses electrode materials including noble metals such as platinum and gold (see page 6, lines 6-21). However, Applicants respectfully submit that there is insufficient motivation for combining these teachings. Particularly, neither Bentson nor Mathies provides any desirability of including a coating of chromium oxide that supports an adhesion of noble metal electrodes.

As attested, it is known in the art that noble metal electrodes cannot reliably adhere to plastic substrates. As attested, there is no teaching or suggestion that a chromium oxide layer would improve the adherence of noble metals on plastics. Rather, copper, as disclosed in Bentson, was the

preferred material. Consequently, Applicants respectfully submit that there is insufficient motivation to make the suggested modification, especially in microstructured analytical systems where the electrodes are very small and thin, and the electrophoretic conditions additionally weaken the adherence of the electrodes. Consequently, Applicants respectfully submit that new claim 12 is also patentable over the cited references.

Claim Rejections Under 35 U.S.C §102(e) and 35 U.S.C §103(a)

Claims 4 and 5 stand rejected as allegedly being anticipated by or obvious over Bentson. However, Applicants respectfully submit that claims 10-12 are patentable over Bentson at least due to their dependency to claim 7, which provide a process for preparing a system where an interior channel is not coated with adhesive after joining the components. As discussed above, the microstructured analytical systems according to Bentson are produced in a continuous process. Such a process inevitably results in units whose channel system is at least partially covered by adhesive. Not only does Bentson not teach how to avoid this problem, Bentson does not even recognize the problem. Consequently, Applicants respectfully submit that claims 10–12 are patentable over Bentson.

In view of the above remarks, favorable reconsideration is courteously requested. If there are any remaining issues, which can be expedited by a telephone conference, Applicants invite the Examiner to telephone counsel at the number indicted below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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